

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1-24. (canceled)

RPQ
25-28, 51-62 (WD), 63-68

O.K. (25) (currently amended) A conjugate peptide or polypeptide formed from two or more amino acid sequences that comprise:

- (a) a first gp41 polypeptide having an amino acid sequence corresponding to a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:3 and is one or more amino acid sequences that are capable of forming a stable coiled-coil solution structure corresponding to or mimicking the heptad repeat region of gp41 (N-helical domain); and
- (b) a second gp41 polypeptide having an amino acid sequence corresponding to a polypeptide comprising the amino acid sequence of SEQ ID NO:5 or SEQ ID NO:6 and is capable of forming one or more amino acid sequences that correspond to, or mimic, an amino acid sequence of the transmembrane proximal amphipathic α -helical segment of gp41 (C-helical domain);

wherein

at least three polypeptides of said one or more sequences (a) and (b) are alternately linked to one another via a bond, such as a peptide bond (amide linkage) to form the conjugate polypeptide or at least two polypeptides of (a) and (b) are linked by an amino acid linking sequence consisting of about 2 to about 25 amino acids to form the conjugate polypeptides.

(26) (currently amended) The conjugate of claim 25, wherein:
said ~~N-helical peptide~~ first gp41 polypeptide comprises about at least 28 to 55 amino acids of the following sequence:
ARQLLSGIVQQNNLLRAIEAQQHLLQLTVWGIKQLQARILAVERYLKDQQLLGI (SEQ. ID NO: 1), or multimers thereof; and

said ~~C-helical peptide~~ second gp41 polypeptide comprises about at least 24 ~~[-56]]~~ amino acids of the following sequence:

WNNMTWMEWDREINNYTSLIHSLIEESQNQQEKNEQELLELDKWASLWNWFNITNW
(SEQ ID NO:4), or multimers thereof.

(27) (currently amended) The conjugate of claim 25, wherein:

said first gp41 polypeptide ~~N-helical peptide~~ is selected from the group consisting one of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, ~~or~~ and one of SEQ ID NO: 9 through SEQ ID NO: 40, and wherein the peptide can be optionally coupled to a larger carrier protein, or optionally include a terminal protecting group at the N- and/or C- termini; and

said second gp41 polypeptide ~~C-helical peptide~~ is selected from the group consisting one of SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, ~~or~~ and one of SEQ ID NO: 41 through SEQ ID NO: 74, and wherein the peptide can be optionally coupled to a larger carrier protein, or optionally include a terminal protecting group at the N- and/or C- termini.

(28) (currently amended) A ~~pharmaceutical~~ composition comprising a conjugate of claim 25, and a ~~pharmaceutical~~-acceptable carrier.

29.-56.(cancelled)

57. (withdrawn and currently amended) A method of raising a broadly neutralizing antibody response to HIV comprising:

administering to a mammal a composition including at least one conjugate ~~peptides or~~ polypeptide ~~[[s]]~~ of claim 25 ~~formed from two or more amino acid sequences that comprise:~~

- i) ~~one or more amino acid sequence SEQ ID NO:2, SEQ ID NO:3, or one of SEQ ID NO:9 through SEQ ID NO:40 or peptides having 1 to 10 conservative amino acid substitutions of each sequence; and~~
- ii) ~~one or more amino acid sequence SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or one of SEQ ID NO:41 through SEQ ID NO:74 or a peptide having 1 to 10 conservative amino acid substitutions of each sequence;~~

wherein,

~~—said one or more sequences (i) and (ii) are alternatively linked to one another via a bond, such as a peptide bond (amide linkage) or by an amino acid linking sequence consisting of about 2 to about 25 amino acids.~~

58. (withdrawn and currently amended) A The method of claim 57, wherein said conjugate polypeptide comprises an amino acid linking sequence having the amino acid sequence is of a (GGGGS)₃ motif (SEQ ID NO:7).

59. (withdrawn and currently amended) The method of claim 57, wherein said conjugate polypeptide comprises a) a first gp41 polypeptide having the amino acid sequence a) comprises of SEQ ID NO:2 or 3 and b) a second gp41 polypeptide having the amino acid sequence b) comprises of SEQ ID NO:5 or SEQ ID NO:6.

60. (withdrawn and currently amended) The method of claim 59, wherein the sequence of (a) is linked to a sequence of (b) which is linked to a second sequence of (a) sequence.

61. (withdrawn and currently amended) The method of claim 59, wherein a sequence of (b) is linked to a sequence of (a) which is linked to a second sequence of (b).

62. (withdrawn and currently amended) The method of claim 59, wherein said one or more sequences is one of (a) and (b), and wherein said first or second gp41 polypeptides peptides are coupled to a larger carrier protein.

63. (new) A conjugate polypeptide formed from two or more amino acid sequences that comprise:

- (a) a first naturally occurring gp41 polypeptide having an amino acid sequence corresponding to a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:3 ; and

(b) a second naturally occurring gp41 polypeptide having an amino acid sequence corresponding to a polypeptide comprising the amino acid sequence of SEQ ID NO:5 or SEQ ID NO:6;

wherein

at least three polypeptides of (a) and (b) are alternately linked to one another via a bond, such as a peptide bond (amide linkage) to form the conjugate polypeptide, or at least two polypeptides of (a) and (b) are linked by an amino acid linking sequence consisting of about 2 to about 25 amino acids to form the conjugate polypeptide.

64. (new) The conjugate polypeptide of claim 25 or claim 63, wherein the first polypeptide comprises the amino acid sequence of SEQ ID NO:3 and the second polypeptide comprises the amino acid sequence of SEQ ID NO:6.

65. (new) The conjugate polypeptide of claim 25 or claim 63, wherein the first polypeptide comprises the amino acid sequence of SEQ ID NO:2 and the second polypeptide comprises the amino acid sequence of SEQ ID NO:5.

66. (new) The conjugate polypeptide of claim 25 or claim 63, wherein the sequence of (a) is linked to a sequence of (b) which is linked to a second sequence of (a).

67. (new) The conjugate polypeptide of claim 25 or claim 63, wherein a sequence of (b) is linked to a sequence of (a) which is linked to a second sequence of (b).

68. (new) The conjugate polypeptide of claim 25 or claim 63, wherein said first and second polypeptides are (a) and (b), and wherein said at least one of said first and second polypeptides are coupled to a larger carrier protein.
